-37-

ABSTRACT OF THE DISCLOSURE

A grating, suitable for filtering optical radiation, comprises a plurality of concatenated grating sections each having different physical characteristics as compared with adjacent grating sections. At least one of the sections comprises a waveguide structure formed by a thin strip (100) of a material having a relatively high free charge carrier density surrounded by material having a relatively low free charge carrier density. The strip has finite width (W) and thickness (t) with dimensions such that optical radiation having a wavelength in a predetermined range couples to the strip and propagates along the length of the strip as a plasmon-polariton wave. Various grating architectures may be implemented, e.g. chirped, interleaved, uniform, etc. A method of producing such gratings derives normalized phase constants and attenuation constants and then uses, for example, TMM or Coupled Mode Theory to derive therefrom the optical response of the grating.